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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/744,159	01/22/2001	Gerhard Strohm	3547-6	3943

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EXAMINER

OCAMPO, MARIANNE S

ART UNIT

PAPER NUMBER

1723

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10

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/744,159		STROHM ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Marianne S. Ocampo		1723	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 November 2002.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5,7,9 and 11-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,7,9 and 11-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>9</u> . | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### *Specification*

1. The disclosure is objected to because of the following informalities: the reference number "6" has been used to designate the filter elements in page 2 of the amendment which shows the amended version of the paragraph appearing in page 9, lines 5 – 22, and in particular in line 10. The examiner is unclear if there is a typographical error made, and that the phrase "filter elements" should be changed to "sealing elements", since in Fig. 4, the reference number 6 is designating sealing elements.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 – 3, 9, 11 – 12 and 14 - 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gneuss (US 5,449,458) in view of Naruo et al.(US 4,871,456).

4. Concerning claim 1, the term “deep bed material” has been defined (in terms of a material of construction) in the specification, page 3, lines 6 –7 by the applicants as “organic and/or inorganic fibrous and/or grainy materials”. This term, in turn has been considered by the examiner, to be any organic fibrous materials, inorganic fibrous materials, grainy materials or a combination thereof. Gneuss discloses a filter module which defines filtrate and unfiltered material spaces and which comprises a plurality of filter regions (17) and a plurality of drainage layers which include a drainage layer adjacent ones of the filter regions wherein a first type of said drainage layers includes sealing elements (rings, 20) disposed at a side thereof adjacent the unfiltered material space (space occupied by arrows 28) and flow elements (18, 19) disposed at an opposite side thereof adjacent the filtrate space (space occupied by the flow, 30) and a second type of drainage layers including sealing elements (closed edges formed by adjacent ridges 18) disposed at a side thereof adjacent the filtrate space (space occupied by 30) and flow elements (openings defined between rings 20) disposed at an opposite side thereof adjacent the unfiltered material space, wherein the filter regions and the first and second type of draining layers are formed into a stack (14) on one another without gaps such that the first and second types of drainage layers alternate relative to one another in the stack so that the sealing elements thereof alternately seal the drainage layers from the filtrate and unfiltered material spaces and the flow elements alternately establish flow paths between the drainage layers and the filtrate and

unfiltered material spaces, respectively and wherein at least one of the sealing elements and flow elements (in this instance, the flow elements) including connectors (in the form of adjacent fused or joined ridges 18 or flanges or surfaces which connects one filter region to another) for establishing mutual connection between the filter regions (17) and the drainage layers in the stack (14), as in fig. 3 and in cols. 3 – 4. Gneuss fails to disclose the filter regions being formed of *deep bed* filter material [here being defined to be any filter material not only materially comprising of organic and/or inorganic fibrous and/or grainy materials but also having a certain thickness (“deep bed”)]. Naruo et al. teach a similar filter module to that of Gneuss wherein the module includes a plurality of filter regions (2) formed of a deep bed filter material (“membrane filters” which have a certain thickness and formed of organic (thermoplastic) materials in the form of thermoplastic fibers (organic), as in cols. 7 – 9 and in figs. 6 – 8. It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the material of construction of the filter regions of the module of Gneuss to the material taught by Naruo et al., in order to provide an alternative but more effective filter material which provides greater filtering area and greater capacity for trapping/holding undesirable particulates or contaminants compared to conventional filter meshes/screens disclosed by Gneuss.

5. Regarding claim 2, Gneuss also discloses the filter regions (17) including first (stiff mesh layer) and second (finer mesh filter medium) layers having respective degrees of separation disposed one on top of another, as in col. 4 and in fig. 3.

6. With regards to claim 9, Gneuss discloses the connectors (radially extending portions of 18) protruding from the sealing elements into the adjacent one of the filter regions (17), as in fig. 3.

7. With respect to claim 14, Gneuss further discloses the filter and drainage layers being planar structures, as in fig. 3.

8. With regards to claim 15, Gneuss also discloses the filter regions comprising a plurality (at least two) of individual filter layers (a stiff mesh layer and a finer mesh filter medium layer), as in col. 4.

9. Concerning claim 18, Gneuss further discloses at least some (at least one) of the filter layers have different (i.e. able to trap or remove finer particulates) filtration properties compared to others (i.e. the stiffer mesh layer) of the filter layers, as in col. 4.

10. With regards to claims 19 - 20, Gneuss discloses the flow elements including holes or grooves (19) oriented parallel to the plane of the drainage layers, as in fig. 3.

11. Regarding claim 22, Gneuss discloses the sealing elements (20) and flow elements being joined together with the drainage layers in a leakproof manner, as in fig. 3.

12. With regards to claim 3, Gneuss fails to disclose the filter regions include first and second layers which has the same degree of separation disposed one on top of another. Naruo et al. teach a similar filter module to that of Gneuss, comprised of a plurality of filter regions disposed on top of one another and a plurality of drainage layers disposed between adjacent ones of the filter regions, and wherein the filter regions includes a first and a second filter layers (2) lying on top of one another, as in fig. 6. Naruo et al. teach the filter layers (2) disposed one on top of another being made of the same material (PTFE, polyvinylidene fluoride, etc), and therefore having the same degree of separation, as in cols. 8 – 9. It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the filter regions of Gneuss by adding the embodiment taught by Naruo et al., in order to provide an improved filter module having the additional capacity/increased surface area for filtration, thereby allowing more undesirable or unwanted materials/particulates be removed by the filter module. See case law, *In re Harza* [274 F.2d, 124 USPQ 378 (CCPA 1960)] in which a mere duplication of parts (in this instance, duplication of the filter layers in each filter region from one to two) for a multiplied effect does not carry any patentable weight or significance unless a new or unexpected result is produced. See also M.P.E.P. section 2144.04, part VI paragraph B.

13. Concerning claim 11, Gneuss fails to disclose the draining layers comprising a drainage layer material including a plastic nonwoven material. Naruo et al. teach the drainage layers comprised of a drainage layer material (14) including a plastic nonwoven material in the

form of polyester or polypropylene, as in col. 6, lines 9 – 25 and col. 9, lines 22 – 24. It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the drainage layers of the filter module of Gneuss by adding the embodiment taught by Naruo et al., in order to provide an improved filter module which has drainage layers which provide additional support for the filter regions, thereby allowing the filter regions to withstand a greater amount of filtering pressure without getting damaged (see col. 6, lines 58 – 64).

14. Regarding claim 12, Naruo et al. further teach the drainage layer material (14) being integral with (i.e. held by bonding thereto) the sealing (16) and flow (3) elements, as in fig. 8 and in col 6, lines 65 – 66 and col. 10, lines 16 – 21. The same motivation used in claim 11 is applied here.

15. With regards to claims 16 -17, Gneuss has disclosed the filter regions having a plurality of individual filter layers but fail to disclose at least some of the filter layers being formed of a filter material having the same filtration properties (claim 16), and all of the filter layers being formed of a filter material having the same filtration properties (claim 17). Here the examiner has considered same filtration properties to be having the same porosity or formed of the same material (thereby able to trap the same size or type of particulates, respectively). Naruo et al. teach a filter module having a plurality of filter regions comprising a plurality of individual filter layers (2) being made/formed of the same material (PTFE, polyvinylidene fluoride, etc), and therefore having the same filtration properties, as in cols. 8 – 9. It is considered obvious to



one of ordinary skill in the art at the time of the invention to modify the filter regions of Gneuss by adding the embodiment taught by Naruo et al., in order to provide an improved filter module having the additional capacity/increased surface area for filtration, thereby allowing more undesirable or unwanted materials/particulates be removed by the filter module. See case law, *In re Harza* [274 F.2d, 124 USPQ 378 (CCPA 1960)] in which a mere duplication of parts (in this instance, duplication of the filter layers in each filter region from one to two) for a multiplied effect does not carry any patentable weight or significance unless a new or unexpected result is produced. See also M.P.E.P. section 2144.04, part VI paragraph B.

16. With respect to claim 21, Gneuss fails to disclose the sealing and flow elements being formed as a one part (i.e. integral or unitary) structure with the drainage layer material in a leakproof manner. Naruo et al. teach the drainage layer material (14) being held/bonded to the sealing elements (16) and flow elements (3) to form a one-part/unitary structure therewith in a leakproof manner, as in fig. 8 and in cols. 6- 10. It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the filter module of Gneuss by adding the embodiment taught by Naruo et al , in order to provide an improved filter module which is easily assembled and providing additional support to withstand high filtering pressures and providing an arrangement which allows for a greater effective filtering area since the drainage layers are not held onto/bonded to the filter regions which in conventional filter modules have decreased/limited the effective filtering areas of those modules (see col. 10, lines 55 – 60 and col. 6, lines 58 – 64).

17. Regarding claim 23, Gneuss disclose a filter module defining unfiltered and filtrate material spaces and comprising a plurality of filter regions (17) formed of deep bed filter material and a plurality of drainage layers (spaces between the filter layers/regions (17) disposed adjacent ones of the filter regions wherein a first type of the drainage layers includes sealing elements (20) disposed at a side thereof adjacent the unfiltered material space (occupied by arrows 28 and surrounding the filter module) and flow elements (18) disposed at an opposite side thereof adjacent the filtrate space (region in the central portion of the module receiving the filtrate in area of the arrows 30) and a second type of drainage layers including sealing elements (i.e. closed off edges formed by adjacent ridges 18 disposed on top of one another) disposed at a side thereof adjacent the filtrate space and the flow elements (open areas to let unfiltered material therethrough) disposed at an opposite side thereof adjacent the unfiltered material space wherein the filter regions (17) and the first and second drainage layers are formed into a stack (14) on one another without gaps such that the first and second types of drainage layers alternate relative to one another in the stack (14) so that the sealing elements thereof alternate seal the drainage layers from the filtrate and unfiltered material spaces and the flow elements alternately establish flow paths between the drainage layers and the filtrate and unfiltered material spaces, respectively, and wherein the flow elements of the first and second drainage layers include openings which allow fluid flow between the filtrate and the unfiltered material spaces respectively and the drainage layers, as in fig. 3. Gneuss fails to disclose the drainage layers including a drainage layer material. Naruo et al. disclose a similar filter module to that of

Gneuss, wherein the drainage layers include a drainage layer material (14) formed of a plastic nonwoven material (i.e. polyester or polypropylene), as in col. 6, lines 9 – 25 and col. 9, lines 22 – 24. It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the drainage layers of the filter module of Gneuss by adding the embodiment taught by Naruo et al., in order to provide an improved filter module which has drainage layers which provide additional support for the filter regions, thereby allowing the filter regions to withstand a greater amount of filtering pressure without getting damaged (see col. 6, lines 58 – 64).

18. With respect to claims 24 - 25, Gneuss also disclose the openings including holes or grooves (forming the openings 19) formed through the flow elements, as in fig. 3.

19. Concerning claim 26, Gneuss further disclose at least one of the sealing elements and flow elements including connectors (flanges or portions of the sealing elements or flow elements) for establishing mutual connection between the filter regions and the drainage layers in the stack (14), as in fig. 3.

20. Claims 4 – 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gneuss in view of Klein (US 4,664,812).

21. With regards to claim 4, Gneuss fails to disclose the filter regions being formed of adsorptive filter material. Klein teaches a filter module comprising a plurality of filter regions

(13, 29) being formed of an adsorptive filter material (in the form of activated carbon, diatomaceous earth, etc), as in fig. 1 and in cols. 5 – 9. It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the material of construction of the filter regions of the filter module of Gneuss, in lieu of the material of construction taught by Klein, in order to provide an improved filter module which is not only able to remove undesirable or unwanted particulates from a fluid, but has the ability to remove color-, taste- and odor-causing impurities from the fluid, thereby providing a cleaner and safer fluid for consumption/end uses.

22. Concerning claim 5, Gneuss fails to disclose the filter regions include filter materials having different adsorption properties. Klein also teaches another embodiment (i.e. multi-unit) for the filter module wherein the filter regions (13, 29) of each unit (A, B or C) forming the filter module include filter materials having different adsorption properties, as in cols. 7 – 8 and fig. 5. It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the filter module of Gneuss by adding the embodiment of Klein in order to provide an improved and more effective filter module which has the ability to treat a fluid containing more than one type of impurities (i.e. containing both undesirable granular and dissolved chemical impurities which cause colors, bad taste or odor) therein.

23. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gneuss in view of (US).

24. Regarding claim 13, Gneuss fails to disclose the sealing elements include interconnected clips and projections. Muller teaches a filter module including a plurality of filter regions (plates) having sealing elements/rings (9, 10, 2) including interconnected projections (8) and clips (7) for mutually connecting the filter regions in a stacked arrangement, as in figs. 1 – 2 and cols. 1 – 2. It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the sealing elements of the filter module of Gneuss, by adding the embodiment taught by Muller, in order to provide an alternative design for mutually connecting the filter regions and drainage layers forming the filter module which provides for easy assembly and disassembly of the filter regions and drainage layers from each other for either replacement or cleaning of the individual filter regions/layers of the module without discarding the entire module once clogging or damage of a filter region has occurred.

***Response to Amendments and Arguments***

25. Applicant's arguments with respect to claims 1 – 5, 7, 9 and 11 - 26 have been considered but are moot in view of the new grounds of rejection presented above. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory

period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

### *Conclusion*

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patents 1,197,403 (Seavey), 4,016,080 (Williams), 5,538,634 (Pfiffner et al.), 3,624,778 (Weber), 3,347,384 (Muller) and 3,561,602 (Molitor).

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne S. Ocampo whose telephone number is (703) 305-1039. The examiner can normally be reached on Mondays to Fridays from 8:00 A.M. to 4:30 P.M..

28. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker can be reached on (703) 308-0457. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

29. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

*hsgo*  
M.S.O.

January 13, 2003

*W. L. Walker*  
W. L. WALKER  
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